EFS-Web Receipt date: 04/13/2005

1007563194074132 c'd PCT/PTC 1 3 APR 2005

Approved for use through 07/31/2006. OMB 0651-0031 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known					
Application Number					
Filing Date	04-13-2005				
First Named Inventor	Avto TAVKHELIDZE				
Art Unit					
Examiner Name					
Attorney Docket Number	12090				

			U. S. PATENT	DOCUMENTS	
Examiner Initials*	Cite No. <sup>1</sup>	Document Number  Number-Kind Code <sup>2 (# known)</sup>	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		<sup>US-</sup> 3,740,592 A	06-19-1973	Engdahl et al.	
		<sup>US-</sup> 4,011,582 A	03-08-1977	Cline et al.	
		<sup>US-</sup> 4,063,965 A	12-20-1977	Cline et al.	
		<sup>US-</sup> 5,336,547 A	08-09-1994	Kawakita et al.	
		<sup>US-</sup> 5,917,156 A	06-29-1999	Nobori et al.	
		<sup>US-</sup> 6,214,651 B1	04-10-2001	Cox	
		<sup>US-</sup> 6,225,205 B1	05-01-2001	Kinoshita	
		US- 2001/0046749 A1	11-29-2001	Tavkhelidze et al.	
		<sup>US-</sup> 6,417,060 B2	07-09-2002	Tavkhelidze et al.	
		<sup>US-</sup> 5,722,242 A	03-03-1998	Edelson	
		<sup>US-</sup> 5,675,972 A	10-14-1997	Edelson	
		<sup>US-</sup> 4,039,352 A	08-02-1977	Marinescu	
		<sup>US-</sup> 5,699,668 A	12-23-1997	Cox	
		<sup>US-</sup> 2003/0068431 A1	04-10-2003	Taliashvili et al.	
		<sup>US-</sup> 6,117,344 A	09-12-2000	Cox et al.	
		<sup>US-</sup> 5,503,963 A	04-02-1996	Bifano	
		<sup>US-</sup> 6,281,514 A	08-28-2001	Tavkhelidze	
		<sup>US-</sup> 5,068,535 A	11-26-1991	Rabalais	
		<sup>US-</sup> 5,604,357 A	02-18-1997	Hori	

	FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages			
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	MM-DD-YYYY	A Principle of Oriog Document	Or Relevant Figures Appear	T⁵		
		WO 99/13562 A1	03-18-1999	Tavkhelidze et		<del>                                     </del>		
		WO 99/64642 A	12-16-1999	Tavkhelidze		T		
		JP 4080964 A	03-13-1992	Ando				
		WO 02/47178 A	06-13-2002	IBM UK		┢		
		WO 00/59047 A	10-05-2000	Thermodyne Tech		┰		
		EP 0 437 654 A1				┢━		

7=			
Examiner		Date	
Signature	l /Shannon Gardner/		03/31/2008
Oignature	/Orlamon daraner/	Considered	00/01/2000

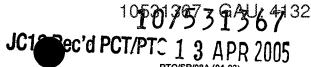
\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at <a href="www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language

Traistation is anacticed.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

EFS-Web Receipt date: 04/13/2005



Approved for use through 04/30/2003. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known				
Application Number				
Filing Date	04/13/2005			
First Named Inventor	Avto TAVKHELIDZE			
Art Unit				
Examiner Name				
Attorney Docket Number	12090			

				DOCUMENTS	
Examiner Initials*	Cite No.1	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	<b>├</b>	Number-Kind Code <sup>2</sup> (# known)			Figures Appear
		<sup>US-</sup> 4,686,162	08-11-1987	Stangl et al.	
		<sup>US-</sup> 5,023,671	06-11-1991	DiVincenzo et al.	
		<sup>US-</sup> 5,119,151 A	06-02-1992	Onda	
		<sup>US-</sup> 5,229,320 A	07-20-1993	Ugajin	
		<sup>US-</sup> 5,233,205 A	08-03-1993	Usagawa et al.	
		<sup>US-</sup> 5,247,223 A	09-21-1993	Mori et al.	
		<sup>US-</sup> 5,332,952 A	07-26-1994	Ugajin et al.	
		<sup>US-</sup> 5,371,388 A	12-06-1994	Oda	
		<sup>US-</sup> 5,432,362 A	07-11-1995	Lippens et al.	
		<sup>US-</sup> 5,521,735 A	05-28-1996	Shimizu et al.	
		<sup>US-</sup> 5,579,232 A	11-26-1996	Tong et al.	
		<sup>US-</sup> 5,654,557 A	08-05-1997	Taneya et al.	
		<sup>US-</sup> 5,719,407 A	02-17-1998	Ugajin	
		<sup>US-</sup> 5,722,242 A	03-03-1998	Edelson	
		US- 5,772,905 A	06-30-1998	Chou	
		<sup>US-</sup> 6,117,344 A	09-12-2000	Cox et al.	
		<sup>US-</sup> 6,281,514 B1	08-28-2001	Tavkhelidze	
		<sup>US-</sup> 5,705,321 A	01-06-1998	Brueck et al.	
		US-			

Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages	Γ
<u></u>	Country Code <sup>3</sup> "Number <sup>4</sup> "Kind Code <sup>5</sup> (if known)	MM-DD-YYYY		Or Relevant Figures Appear	1
	JP 03155376 A	07-03-1991	Japan Atomic Po		Г
	JP 05226704 A	09-03-1993	Matsushita Elec		Г
	DE 3404137 A1	08-08-1985	Dahlberg		Г
	DE 3818192 A1	12-07-1989	Dahlberg		Г
					Γ

_			
Examiner		Date	
Signature	/Shannon Gardner/	Considered	03/31/2008
U.g. lataro	/Snamon Gardner/	Considered	00/01/2000

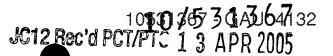
\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at <a href="https://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Translation is a traccred.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

EFS-Web Receipt date: 04/13/2005



PTO/SB/08B (08-03

Approved for use through 07/31/2006. OMB 0651-0031 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitut	Substitute for form 1449/PTO			Complete if Known		
Cubsului	10 10/10/11/14-5// 10			Application Number		
INFO	ORMATION	DIS	CLOSURE	Filing Date	04/13/2005	
STA	STATEMENT BY APPLICANT			First Named Inventor	Avto TAVKHELIDZE	
	ales se secondo	4		Art Unit		
	(Use as many she	ets as n	ecessary)	Examiner Name		
Sheet	3	of	3	Attorney Docket Number	12090	

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T²
		CHOU et al., "Imprint Lithography with 25 Namometer Resolution", SCIENCE, 04-05-96, pp 85-87, vol 272.	
		SUNGTAEK JU et al., "Study of interface effects in thermoelectric microfefrigerators", Journal of Applied Physics, 10-01-2000, pp 4135-4139, vol 88, no 7.	
		HISHINUMA et al., "Refrigeration by combined tunneling and thermionic emmission in vacuum: Use of nanometer scale design", Appl Phys Lett, 04-23-2001, pp2572-2574,vol 78,no 17	
· - · · ·			

Examiner	/Shannon Gardner/	Date	03/31/2008
Signature	700amon daranen	Considered	

<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

considered. Include copy or this form with next communication to applicant.

Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:

Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.